

Pitcher Plant Germination in Sequential Photographs

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As part of a larger study,* several photographs of pitcher plants (*Sarracenia purpurea*) in various stages of germination and growth were taken. These photographs reveal the emergence of the embryonic root, the seed leaves, the first true leaves (pitchers), the developing leaf wing, and the opening of the first pitcher.

Pitcher plant seed was collected in southeastern Wisconsin in October and November. The seed was stratified for several weeks during the winter, then was sown the following spring. The seeds were sown on moistened filter paper in petri dishes. The petri dishes were placed in clear plastic bags to help prevent desiccation; the bagged petri dishes were set out in a heated greenhouse. Seeds were started on several different dates in order to obtain these photographs, which were all taken on the same day in mid-April. The scale used in the photographs is a metric ruler, which displays millimeters and centimeters.

The emergence of the embryonic root, which occurred within two weeks after the seeds were placed out in the greenhouse, marks the visible beginning of germination. The roots evident in photograph #1 have been visible for three days. The root emerges first in pitcher plants, and in most plants, in order to enable the young seedling to become anchored in the soil and to absorb water.

At ten days from the visible beginning of germination, the seed leaves are nearly completely exposed (photograph #2). All pitcher plants as well as many other flowering plants have two seed leaves within their seed coats. The seed leaves have been present in the seed since its early development, and function in providing food for the developing seedling. The seed leaves will not attain much larger size, nor will they attain the pitcher shape. After the true leaves develop and the seedling becomes self-sufficient, the seed leaves will simply shrivel up and drop off.

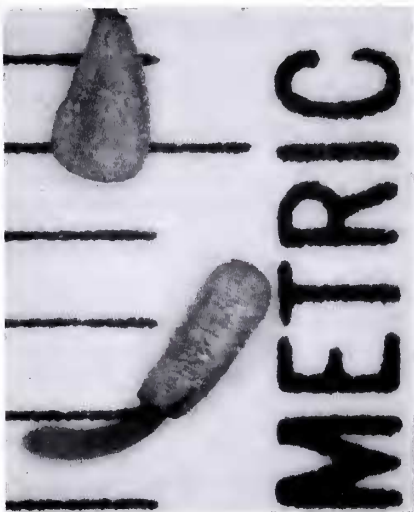


Photo #1



Photo #2

At twenty days (photograph #3), the outer coat of the seed has dropped away, and the seed leaves are spread to capture light. The first true leaf (and the first leaf to become pitcher-shaped) has just become visible at the growing point between the seed leaves. In this photograph, the first true leaf is about two millimeters in length.

At two months, several true leaves exist (photograph #4). The seed leaves are still present, though they will persist only a short time longer. A close-up of the smaller, younger leaf reveals the early formation of the leaf wing (photograph #5). A close-up of the larger, older leaf (photograph #6) reveals that the first-formed pitcher leaf has already opened. The opening evident is one millimeter across; the leaf itself is about one centimeter (just under one half inch) long.

* Golembiewski, Teresa A. 1984. The influence of pH and nutrient availability on the distribution of *Sarracenia purpurea* (pitcher plant) in three southeastern Wisconsin fens. M.S. thesis. University of Wisconsin, Milwaukee. 104 p.



Photo #3



Photo #4



Photo #5



Photo #6